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Liew, Choong-Chin

<120> Method for the Detection of Gene Transcripts in Blood and Uses  
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<151> 2000-01-04

<150> US 60/115,125

<151> 1999-01-06

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aacgttgtga taaatcttac gtcgtcttat atattaagtt tttgtggagg atcggataag 240  
30 tctatagtgt ttgtcacaga tagtcccga ccacaccca gaccatagga gtcgctctcc 300  
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45 caaataaaca aaaacttcca atctccattt aaaat 155

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 25 gaaaaanttt tccggggggc ccaccggga agggntnccg gggaaggg 168  
  
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 35 ggaacaaatt tgggatagaa atataaggct gggattacag gcatgagcca ccaagcccgg 120  
  
 cccacatttc cattttaat atatactgtg cttacaaat attataatat gttttaaatt 180  
  
 40 atgttcacag aagcacctgg tctgtgaatg gcatgccagc attaaaaaaaa ataagcattc 240  
  
 tttgaatata tatttagttt ttaattgtg taggaaaatc aaagccagag ggagtagaaa 300  
  
 caaaatttgt gattttctaa atactcttg gctgcaggga agaaaccacg tcccaggcga 360  
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438

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 15 aaagggggaa ggcccccaa accggggggg gggnaaaaag gtgggtttcc cccttttcc 180  
 aattcccaa accaatttc aaaaggnaaa ccaacnttc ccaaatggg aaagg 235

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 45 caaattgggg ggnaaaccaa atttaagggg ggaagggggg gncccccccg ggaaaggccc 180



aaggggggaa aatttttccg ggggtgggtn gggggaacca atttaagggg ggggcccccg 240

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15

ctgtacttga actctaaac tggtagagaa actcagtgt taccacaaca gattcattc 180

aaatagctgt aaaaggtatg ttactccag aagaccagag ttgcttctt tgaacttctc 240

20

attccttggg cctaggaacc ctatcaccc tcatccaac gtcaaccag atcttctctt 300

ccataaacag cactccctca gggccctgcc tgacacaggc atagactgtc atgttgatt 360

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 tttaggcggc accccaacaa caccaggccc tactttttcc aaggncgggg aagcccatgg 180  
 45 gtctcgggna acgggcaatg cgggcttgca acgggnggaa naaaacagn cccaaaagaa 240

tg 242

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 tctcagctca ctgcaacctc cacctctcag gagaattgct gaacctggga ggcggaggtt 120  
 15 gcagggagct gagattgcgc cactgccctc catcctgggc gacagagcaa gaacctgtct 180

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 aaggggggtg gggaagagcc aaatttcttt gggaaanaac gcccccttgg ggaaaanaag 180  
 gccaaccacc tttaacanc cccaangcg nggaagccat ttcttgg 227

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 ggaagaattg tatgtgggag ttttaatgg tctcatttca ttggctataa ctacgttaca 180  
 aggagaaata taactgcaga ggagcttga aaatttagtt cagctgaggg taaaggaaga 240  
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 agatcgccta gccctttgcg ggcgaccacc acgatgtccc agcctgtcag gttgtcctga 120  
 40 ttgaggcgaa aggactcgcg gatttgacgc ttgatgcggt tgcgctcgac ggcgagcttg 180  
 acgctctttt tgccgatcac caaacctagg cggggatgat caagctgggt atcgcgcgct 240  
 agcagcagga cacttttgcc cgggagcttt accgcttggg gagtcgaaga ctgccttgna 300  
 45 ttgccgggga gtcagcagtc gctttttccc ggnegaagcc tcgaactcac cancctgtct 360

ggattaatta gacagcaaga cgcttgccgc ccctttggcg cgaacgaacn ncgaaaagga 420  
 cttgcgcggc ccgtttcttt ggggggccaac taccggggcn cggggaaaac ccgnggggng 480  
 5 gccaaacccc cc 492

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 acgagccggg ctggagcggg gggaaaagca aatgtaggca taagtaacga caatcgggc 120  
 45 gagaaccccg cacaccgaaa ggctaaggat tcctccgcta tgtcaatcaa cggagggtta 180

gtcgggtact aaggcgtag cgaaggcgaa gcgccgatgt gaaggggggtt aatattcctc 240  
 cacttgccat gcgtgtgaat ccatgacgga gacgaagccg ggggtgcgtc ctgacggaag 300  
 5 tgggcgccag caggggcggc cttcgggcca aaccgaacct caggtcanac ttccaagaaa 360  
 agtgggtgaa acgccagcgc atggcaaccc gtaccgcaaa ccgacacagg tagccggggg 420  
 anaacatcct aagngctcg agagtacttt ctagagcggc cgcgggcccc atcgantttt 480  
 10 ccacccgggn ggggtaccag 500

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aagaaggaac ccacctngg ggccaaacaa aaacttaaaa acccccccat ttctncccc 180  
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 cctgtgaaac ccataaacag tgggaaatgg tgc 153  
  
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tgtcctgaag gacaagccgn ttcgttgaa nctgtgaaat ac 102

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atttgtggtc ggaagctttg caaagagggg acctgggtct gaggacatg cgtggccact 120

30 ggtgctcctg cgtttggact gtgcaggcct ctctatgct gatgcgtctc cccactcctg 180

agctaatttc tgctctgctc cttctgtgac atgtggcagc gtgggaaata gccactgtcc 240

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tttaaaaatt tatgcatat gtccagcttc cagtcagtcg ttctggtag catgaggata 120

5 actagatttt actgtagatg gtagataaaa gtccagtgaa aagcaaagat gtgtaatgtt 180

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 35 actaatgaaa tgaaaatgaa atgganntga tgagatgaga agaantgctg agatgagata 420  
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45 cttgtttaga cttgcatctg cacatagaag tagggatttc atgctgttat cagcctaatt 180

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 tgaaatgata gatgagataa aatgatgata tgaaatgatg agatgaatga tgagatgatg 180  
 15 agatgaatga tgaaatgaaa tgatgagatg agatgatgaa atgaaatggt gagatgaaat 240  
 gatgagatga aatgaaatag tgaaatgaaa ttgaaataaa atcgaaatga gagatgaaat 300  
 gatgagatga tgaaattgat gaaatgatga gatgtgatga gatgaaatga tgagatgaga 360  
 20 tgagatgaca tgaaataatg aatgaaatt gaaatgagat aagatacgag ctgagatgca 420  
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 15 ngacgcgccg tacaggntna attatggan cttacatggn aaaggggcan ctcaatgtcc 120  
  
 cacag 125  
  
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 35 aatgaatct gagatgaaat gagatgaaaa ntgatacgaa aatgatata aaaaatatga 180  
 cctgagatga aatgagatga aaaatgatac gaaaaatgat ataaaaata tgacatgaaa 240  
 40 tgaaatgaga tgatatgaaa tgacataatg aatgatgaa ttgatgatat tgaaatgaaa 300  
 ttgaaagatg agatgaaatg atgagatgaa atgaaatgtt gaaatgatga agagatgtga 360  
 catgaaatga gctgaaatga gatgaaatga aatgagatta aatgatgaga tgaaaaatga 420  
 45 tgagatgaaa aatgagatga gatgatgaga tgagatgaga tgaattgaga tga 473

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 gaaatgagat gaaataaaat aatgaaatga tgaaataatg aaatgaaaat gagatggaaa 180  
 30 tgatgagatg agaagaaatg atgagatgaa atgatgaaat gatgagatga ganaaaatga 240  
 gatgaaatga tgagatgaga tgaaatatga tgagttgaaa tgacataatg aatgaaatga 300  
 35 tgaaatggaa taatgaaatg gaaatgatga gctgagatgc aatgagttga aatgagatga 360  
 aatgatgaaa tgatgagatg aaatgatgaa atgaaataat gaaatgagat gaaataaaat 420  
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cataaaatga gatgaaatga gatgtaatga tggaatgaga tgagatgaaa tgagatgaaa 180

20 tgatagatga gataaaatga tgatatgaaa tgatgagatg aatgatgaga tgatgagatg 240

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<210> 75

<211> 155

<212> DNA

<213> Human

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40 <211> 367

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ctacttnaga ngaantcctc gcaaaatcct tgaatcaccg cttcagtgca gtgatatcac 120

cgccatgaaa ttctgctcg attagcttac gttgtttgga tagaggccaa acaaggctgt 180

45 tatcggtacg aggaatggat gttagatttc gtagaatacg cctgagagac ggccaatact 240

ctcacgagag gcagcaggcg cgtaaattac ccaattacaa caagtagagg tagcgaagga 300

aaatatgagg ggtggcaagg tttgcctgt tacattctca aatggaagca aattagatat 360

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gtcattg 367

<210> 77

10 <211> 257

<212> DNA

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<223> n is a, c, g, or t

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30 tcagtgtttg gggtttattt taaaagaat aggggtgccac cagatgttct ttagtggagg 180

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 30 tattacaaa atatttgac cattantaaa gantagggcc aaccnaatt ttcttgaaa 180  
 ttccgttaa atagccgta aatgtttta cccatttcat attggatacc ttaaattata 240  
 35 ataatggatt ttattgttaa attgtgtgtg tgtggtgtgt atgccctgtc ttttcctc 300  
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 35 ccttgatggt caagtattta agaccctatg cnaatatttt ttaccttttc taataaacca 120  
  
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 40 <210> 80  
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 ggaaaaanaa tccttttaa anggaantcc aagggaagga ncctgnncaa nactcccn 180  
 30 ccaataaaaa aaacntttt ggaaangggg aaa 213  
  
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 35 <211> 443  
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<400> 81

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gaaatgaagt gaaatgaaat tgaaatgaga tgagatgaaa tgagataaaa tgatgagatg 180

15 aaatgagaag aaatgagatg aaatgatgaa atgatgagat gagatgaaaa atgatgggat 240

gagaaatgag atgaaatgat gggatgaaat gaaatgaaat aatgaaataa tgaaatgaaa 300

20 tgaattgata atattgaagt gaaattgaaa gatgagattg gatgaaatga tgagatgaaa 360

tgaaatgttg aaatgaaatg aagagatgta acatgaaatg agctgaaatg atgagatgaa 420

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 25 gacctctgaa tgtattantg anncaagtga tagccaagat attttgaaga aaaatagata 120  
 ntagggacct gctctataag cccatcataa ttattatga agttataaca agtaaaacag 180  
 taaggtattt ggcatggaat agagaaccca gaaacagacc caatgcatgg gtacaggata 240  
 30 taacacaggg aaatgaggga caatatatgg ttctgggata attatttata tggggaaaat 300  
 aaagaaattg gatccctacc tcacacatac aaaaaaaatc ataattgaat taaaaacttg 360  
 35 catgtgaaag gaaagacttt aaaacattta gaaaaagtat tggaggctat gatcttgggg 420  
 taggaaagca ttctttttt tt 442  
  
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5 <220>  
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 15 aggaaggaag gaagg 135

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 aacttcctca gaaggacaag agacaaagaa gtgggggagg ccctcctatc catagctgag 180  
 35 agggtttatt cttgtggtt ctgctgtcag agcctttgga tgtctgatct gagatggagc 240  
 aacccagct agacagaact tttagattt tgggggggtt aaaaggcctc aagcaaattc 300  
 40 taaaacttc ttgaacccc ctggcatagg ctgagttcc ctgact 346

<210> 85  
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 45 <212> DNA  
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<400> 85

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5 gaaaagaaaa tggtttttt tgccgaaatc aaccgggtaa 100

<210> 86

<211> 201

10 <212> DNA

<213> Human

<400> 86

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15 gaaaagagga agaaacgctt ttaggaggt aaggattaaa gtaaaaatta tttgacata 120

attacctct tttgtacca ctcttaaagg ccaggaacat atttgagaa gcctagtgt 180

20 atgtaacagt gtggggtttc a 201

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<211> 531

25 <212> DNA

<213> Human

<400> 87

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tcttttacc cggcactcgg gtccaccctc gcggcaccag aggtattctc cggcgagtcg 180

35 ttaaccatcg caatgccga ccgagtttaa ggaccactcc ccaccttct cattagtaa 240

ggagaacgct actttacccc atagacggag aaatcgctac tcaactacca ggcgcgcgcc 300

gtcgagtccc tcttctctc ttatgcatt tagagcgctt tcgtaagagt tttccctaga 360

40 tcttctaag cgtagcgcgt ctactccaat gtttcgta atccagcccg aactaacgcc 420

gcggaggagt cgtaccgtct actcctatcc cgtcggctcg gatttactac aggagctaag 480

45 aaaacaaaa gtaccagccc taaaggaaag tcaaaggacg cccgtaaaaa a 531

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 acagccaaac cggctccgcc aaggcctccg tcgttttata atatattccg ttacgtata 180  
 aggaacgaac ccccttcat taccacggtc ccgcgtccgc ctcttctcc attcgcaaca 240  
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 gatagcaaag attaccagc ttctattcct cgccccagag ccgagtaaatt cgaagtttat 360  
 20 agaggcggaa tccaaccatt caagagttat aacaagttat cggcactcgg gggatcagaa 420  
 tataaactta atgtccctt tattctcccg gacgcccctt ttaaccatt ctctctatct 480  
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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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<400> 96

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aaatgaaatg aaataatgaa atgaaattga aataaaattg aaatgagatg agatgaaatg 120

atgagatgat gaaataaaat gatgaaatga gatgtgatga gatgaaatga ngagatgaaa 180

40 tgatgagatg agatgacatg aaataaatga aataatgaaa tcgaaatgag atgagaagat 240

acgagatgag atgaaatgat gagatgaaat gatgaaatga gataagatga aaagagttga 300

45 tgagatgatg agatgaaatg agatgaaaag agatgaaatg agatgaaatg aaatgatgag 360

atgaaatgag gtgaaatgaa attagatgaa acgtaatgag atgaaatgac ataataaat 420  
gaaaaaatga aatgaaataa tgaaatgagg tgaaattaaa tgagatgatg aaattaaatg 480  
5 atgaaatgaa ataataaat ggaaatgaaa tggaaatgat gagatgaatg atgagatgaa 540  
atgatgagat gagatgtatt gatgagagga aatgatgaga tgtaatgaaa tgagatgaaa 600  
tgaaatgagat gaaatggaat antggaangg aaattgattg gngatttgag atgaaatgag 660  
10 ntaaatgnga tgaattaatg atgagatgaa atgntgaatg ccgggggtggn tgagatgaat 720  
tgagttgaac cctgngatga atgaagattg nntgaatggt ggntgaatgt tgaatggntg 780  
15 gntggnanaa tgcctgtngg 800

<210> 97  
<211> 334  
20 <212> DNA  
<213> Human

<400> 97  
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gaaatgaaat gatgaaatga atagatgtga catgaaatga gctgaaatga tgagatcaaa 180  
30 tgaaatgaaa tgagattaaa tgatgagatg aaaactgatg aaaacttaaa tgatgaaata 240  
atgaaatgaa aatgaaatgg aatgatgag atgagaagaa atgatgagat gagatgagat 300  
aaaatgagat gaaatgatga gatgaaatga tgag 334  
35

<210> 98  
<211> 100  
<212> DNA  
40 <213> Human

<220>  
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45 <222> (17)..(17)  
<223> n is a, c, g, or t

<400> 98

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5 tgccttgtag acgcttttga acccttcagc gctgaaagta 100

<210> 99

<211> 500

10 <212> DNA

<213> Human

<220>

15 <221> misc\_feature

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<223> n is a, c, g, or t

<220>

20 <221> misc\_feature

<222> (361)..(361)

<223> n is a, c, g, or t

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agatgaaaag agttgatgag atgatgagat gaaatgagat gaaaagagat gaaatgagat 120

gaaatgaaat gatgagatga aatgaggtga aatgaaatta gatgaaacgt aatgagatga 180

30 aatgacctaa tgaaatgaaa aatgaaatg aaataatgaa atgaggtgaa attaaatgag 240

atgatgaaat taaatgatga aatgaaataa tgaaatggaa atgaaatgga aatgatgaga 300

35 tgaatgatga gatgaaatga tgagatgaga tctaataatg agaggagatg atgagatgaa 360

ntgagatgaa aagagatgaa atgagatgaa accgaaatga tgagatgaaa tgaggtgaaa 420

tgaaattaga tgaaacgtaa tgagatgaaa tgacataatg aatgaaaaa atgaaatgaa 480

40 ataatgaaat gaggtgaaat 500

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45 <211> 397

<212> DNA

<213> Human

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

<220>

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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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30 <221> misc\_feature  
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<223> n is a, c, g, or t

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<223> n is a, c, g, or t

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40 <221> misc\_feature  
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<223> n is a, c, g, or t

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tccccctgaa nntctctaaa ccttaacttt ctggccnttt tgtttcagan atgcctaacc 120

ctcagggggt cttttgttct ctacgcctaa aaacttaatc tgtttggaac aattccnttt 180

5 cctctctgta gaaattgacc tggccatggc tcctgtgaat gatacgggtg ctattatccc 240

tgaacactgt aaaaatgaac ttgaaacag ttgggttaga cccaaacaga aaatgatgta 300

tggccttgaa atagtttagc tgaacattat gctttaatat ttactggcc attgcagcac 360

10 aggtttagaa atttatgttc ggctttttaa agtttta 397

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15 <211> 132

<212> DNA

<213> Human

<220>

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<222> (121)..(121)

<223> n is a, c, g, or t

20 <400> 101

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attaattgta ctactttcaa aagaattaat tgaagaaaga gagatacagg gtatctaggc 120

30 ngaggaagac cc 132

<210> 102

<211> 246

35 <212> DNA

<213> Human

<400> 102

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40 ggcacttaatt ttataattg atatatataa taaaaaatc aatgcagata ttgatataat 120

aaaaatagat aatggtaatc caagcacgat ggtagccatc actctaattg ctttgggggtt 180

45 aacctataac ttattaagta aagtgccaga atggttcttt gacagtatta aaattaaaga 240



aaacag

246

- 5 <210> 103  
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 RT-PCR analysis
- <220>  
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 <222> (1)..(18)
- <400> 103  
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- <210> 104  
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 <212> DNA  
 25 <213> Artificial Sequence
- <220>  
 <223> reverse primer of exons 1 and 2 of insulin gene used for  
 quantitative RT-PCR analysis  
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- <220>  
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- <400> 104  
 cccacctgca ggctctct 18
- 40 <210> 105  
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- 45 <220>  
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analysis

5 <220>  
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 gctggaacgt agagactccc tgct 24  
 10  
  
 <210> 106  
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 20  
  
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 25  
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 ggatccttcc agatcatcca ctg 24  
  
 30 <210> 107  
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 45

<210> 108  
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5

<220>  
 <223> reverse primer of ANF used for quantitative RT-PCR analysis

10 <220>  
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<400> 108  
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<210> 109  
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35 <210> 110  
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40 <220>  
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19

5

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10

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15

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cacargagrc arggtcaacg a

21

<210> 112

<211> 22

25

<212> DNA  
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30

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35

<400> 112

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22